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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/846,506	05/01/2001	William A. O'Brien	026.00231	5515

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EXAMINER	
SCHULTZ, JAMES	

ART UNIT	PAPER NUMBER
1635	

DATE MAILED: 05/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/846,506	O'BRIEN ET AL.	
	Examiner	Art Unit	
	J. Douglas Schultz	1635	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 November 2003 and 23 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,4 and 5* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 4, 5* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Status of Application/Amendment/Claims

1. Applicant's response filed November 17, 2003 and February 23, 2004 have been considered. Rejections and/or objections not reiterated from the previous office action mailed May 14, 2003 are hereby withdrawn. The following rejections and/or objections are either newly applied or are reiterated and are the only rejections and/or objections presently applied to the instant application.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Response to Claim Rejections - 35 USC § 112

3. Claims 1, 4, and 5 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention, for the same reasons of record as set forth August 13, 2002.

At the outset, it is noted that the instant rejection is hereby amended in regards to claim 5. The rejection is amended to address claimed subject matter pertaining to the treatment of HIV infection, which is recited only in claim 5. The basis for this new rejection is set forth immediately following this paragraph. Moreover, the pending rejection against all outstanding

claims is maintained, and arguments pertaining thereto addressed following the new grounds of rejection pertaining to treatment of HIV infection.

The claimed subject matter of claim 5 relates to the treatment of HIV infection. Said claim is not considered to have sufficient support in the specification such that one of skill in the art would recognize that the said subject matter was in applicants' possession at the time of filing.

To satisfy the written-description requirement, the specification must describe every element of the claimed invention in sufficient detail so that one of ordinary skill in the art would recognize that the inventor possessed the claimed invention at the time of filing. Thus, an applicant complies with the written-description requirement by describing the invention, with all its claimed limitations, and by using such descriptive means as words, structures, figures, diagrams, formulas, and examples etc., that set forth the claimed invention. To provide adequate written description and evidence of possession of a claimed genus, the specification must provide sufficient distinguishing identifying characteristics of the genus. The factors to be considered include disclosure of complete or partial structure, physical and/or chemical, structure/function correlation, methods of making the claimed product, and any combination thereof.

In this case, applicants' claim language is drawn to the treatment of HIV infection. In contrast, applicants have exemplified an *in vitro* method whereby HIV entry into macrophages expressing co-receptor CCR5 alone is inhibited by CD63 antibodies alone, and for an *in vitro* method whereby HIV entry into macrophages expressing both co-receptors CCR5 and CXCR4 is inhibited by CD63 antibodies in combination with a CXCR4 inhibitor. Applicants have also provided a general set of guidelines in the specification by which treatment may be administered.

However, the prophetic guidance provided sets forth very broad guidelines for administration of the therapeutic molecule that are sufficiently generic as to apply to administration of virtually any molecule, and are not considered specific to the molecules disclosed in the presently claimed methods of treatment.

This disclosure is not considered to provide support such that applicants are considered to be in possession of methods drawn to methods of treating HIV infection, because neither applicants specification nor the prior art actually disclose any correlation between the structure of any claimed antibodies and the claimed function of treating HIV. While the specification provides methods of obtaining antibodies that target CD63, it is pointed out that the claims are not drawn to methods of making antibodies, but rather to treatment of HIV. The claimed function of treating HIV is considered to be extremely unpredictable, as evidenced by the limited number of therapies now available. Applicants' disclosure does not provide a nexus between any structure of any antibody and the function of treating AIDS. Because the instant disclosure does not adequately disclose a correlation between the structure of any anti-CD63 antibody and the claimed function of treatment, one of skill in the art would not envision HIV treatment from the specification as filed. Thus, because no guidance has been provided which actually teaches any antibody or its structural elements that are capable of actually conferring the claimed function treatment of HIV infection, claims to methods of using such antibodies essentially amount to an invitation to experimentation to search for antibodies capable of achieving such treatment, because one of skill in the art would not be apprised as what structures comprising anti-CD63 antibodies actually result in treatment *per se*.

Applicants have also traversed the previously set forth rejection for lack of written description. Applicants argue that because the limitations of claims 1 and 5 were contained in the present application as filed, that there exists an adequate written description of the claimed invention as filed.

This is not considered convincing, because a claim may lack adequate written description even when it is an original claim if an aspect of the claimed invention has not been described with sufficient particularity such that one skilled in the art would recognize that the applicant had possession of that invention. See, MPEP § 2163 I A. It is maintained for reasons of record that the invention as filed does not provide sufficient description such that one of skill would recognize that applicants were in possession of methods designed to decrease levels of functional CD63. Applicants have not described how one of skill would be apprised as to when functional levels of CD63 have been decreased, because it is unclear from the prior art and the specification what the function of CD63 is. While CD63 is considered a marker of such processes as platelet and basophil activation, CD63 is not actually ascribed a function in these processes, but rather is merely considered a signal of such processes. Therefore, in the absence of any described function of CD63, it appears it would be difficult at best for one of skill in the art to determine whether functional levels of CD63 had been decreased. The rejection is therefore maintained.

Finally, it is noted that claim 1 recites a method for "decreasing levels of functional CD63 present within the human immunodeficiency virus and the cells..." As applicants are likely aware, CD63 is present in cells but is not thought to be present within HIV. Thus, methods for reducing the virus in HIV are not considered to possess adequate written description. If

applicants are of the opposite opinion, applicants are invited to point out with particularity where in the specification or prior art such support exists.

4. Claims 1, 4 and 5 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for an *in vitro* method whereby HIV entry into macrophages expressing co-receptor CCR5 alone is inhibited by CD63 antibodies alone, and for an *in vitro* method whereby HIV entry into macrophages expressing both co-receptors CCR5 and CXCR4 is inhibited by CD63 antibodies in combination with a CXCR4 inhibitor, does not reasonably provide enablement for any *in vivo* inhibition of HIV cell entry or treatment or prevention of disease comprising modulation of CD63 levels. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims, for the same reasons of record as set forth in the Office action mailed August 13, 2002.

Applicants have traversed the instant rejection by arguing that one skilled in the art is enabled to use antibodies in a method of treatment of HIV infection *in vivo* using the results from *in vitro* assays. Applicants have provided Patent No. 6,432,405 (the '405 patent) that relates to administering to a patient an anti-CD44 antibody to inhibit HIV infection, and submit that this provides evidence that it is within the skill of one of ordinary skill in the art to administer antibodies to treat HIV infection.

This is not considered convincing, because each patent is prosecuted on its own merits. Applicants have not pointed with any particularity what specifically about the '405 patent is pertinent to the enablement of the instant claims, or otherwise indicated how the disclosure of the

'405 patent provides guidance sufficient to resolve known problems in the art of using results from *in vitro* assays to achieve treatment in the whole animal as claimed.

In arguing that *in vitro* modeling systems correlate well with the *in vivo* environment with respect to antibody treatment for HIV infection, applicants have submitted abstracts from 5 publications which are asserted to indicate that "certain antibodies directed against CD4 could block HIV infection both vitro and *in vivo*." Thus, applicants argue that these references show that the *in vitro* results were predictive of *in vivo* results using CD4 antibodies to block HIV infection.

This is not considered convincing. Applicants statement that certain antibodies directed against CD4 could block HIV infection both vitro and *in vivo* as taught by the prior art is without any factual merit. The abstracts submitted all disclose the *in vivo* inhibition of Simian Immunodeficiency Virus (SIV), not HIV as stated by applicants. Because applicants claims are drawn to treating or decreasing HIV infection, and because SIV and HIV have different hosts, pathologies, and molecular structures, applicants submission is not considered to provide support for the enablement of claims to treating or decreasing HIV infection. Finally, it is noted that the submission of abstracts prevents the full understanding and full consideration of the primary research behind the statements contained in the publication as a whole. It is also noted that while each abstract expresses hope that their respective results may help in the fight against HIV infection (for example Reimann *et al.*, who actually discloses inhibition of SIV *in vivo*), the expressions are one of "promise" as opposed to accomplishment. "Promise" is not considered a sufficient basis for enablement of claims drawn to HIV treatment or reduction of viral entry,

since it does not overcome the known unpredictability of treating HIV infection as exemplified by the prior art. The rejection is thus maintained.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to J. Douglas Schultz whose telephone number is 571-272-0763. The examiner can normally be reached on 8:00-4:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John L. LeGuyader can be reached on 571-272-0760. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

James Douglas Schultz, PhD

SEAN McGARRY
PRIMARY EXAMINER
1635